**IN THE CLAIMS:**

1. (Currently Amended) A system for indexing and manipulating backup data stored on a destination storage system, comprising:

    one or more source storage systems configured to transmit the backup data to the destination storage system;

    a management client comprising a processor configured to execute a management application ~~executed by a processor~~, ~~wherein~~ the management application ~~is~~ configured to communicate with the destination storage system and further configured to access data identifiers related to the backup data organized in a directory tree ~~structure~~ representing a plurality of persistent consistency point images (PCPIs) of the backup data, wherein each PCPI is associated with a creation time, the management application further configured to scan the directory tree through at least one volume information block configured to reference each~~a~~ root of each PCPI comprising the directory tree to generate an index of directories, files, or qtrees associated with the directory tree, the management application further configured to ~~and~~ organize the data identifiers ~~into a structure that~~to enables the backup data to be displayed on a display screen of the management client; and

    a user interface of the management client configured to select a directory, file, or qtree to view, ~~wherein~~ and, in response to the selection, the management client further configured to query the management application ~~is further configured~~ and in response to the query to return a list of the selected directory, file, or qtree and one or more versions of the selected directory, file, or qtree.

2. (Currently Amended) The system as set forth in claim 1 further comprising a database coupled to the management client configured to store~~that stores~~ the data identifiers and rules for handling the data identifiers for retrieval by the user interface and the management application.

3. (Currently Amended) The system as set forth in claim ~~2~~ 1 further comprising, in the destination storage system, a network data management protocol (NDMP) extension

2

3    communicating with a storage operating system of the destination storage system and

4    providing NDMP-based communication between the management application and the

5    storage operating system.

1    4. (Currently Amended) The system as set forth in claim 3 further comprising a job <u>man-</u>

2    <u>agement</u> framework <u>of the management client configured to</u>~~that~~ organizes <u>one or more</u>~~a~~

3    ~~plurality of~~ backup operations and restore operations by the management application and

4    that communicates with the user interface ~~so as~~ to enable a user to access information

5    with respect to status of the backup operations and restore operations organized by the

6    job <u>management</u> framework.

1    5. (Currently Amended) The system as set forth in claim ~~4~~<u>1</u> further comprising a sched-

2    uler <u>of the management client configured to</u>~~that~~ interfaces with the source storage system<u>,</u>

3    ~~and that~~ performs the backup operations, <u>and transmit</u>~~transmitting~~ the backup data from

4    the source storage system to the destination storage system at a predetermined time inter-

5    val.

1    6. (Currently Amended) The system as set forth in claim 1 wherein the <u>display screen of</u>

2    the ~~user interface~~<u>management client</u> is configured to enable ~~comprises a screen that en-~~

3    ~~ables~~ a user to set a desired lag time after which failure to complete a scheduled backup

4    operation causes an event to occur.

1    7. (Currently Amended) The system as set forth in claim 1 <u>wherein</u>~~further comprising~~ the

2    user interface <u>of the management client is further configured</u> to select a listing of source

3    data entries indexed by names of the source storage system and <u>to select</u> <u>another</u> listing of

4    source data entries indexed by names of volumes of the destination storage system in

5    which the backup data ~~from the source data~~ resides.

1  8. (Currently Amended) The system as set forth in claim 7 wherein <u>the display screen of</u>

2  <u>the management client</u>each of the entries of each listing comprises a browse backups but-

3  ton <u>configured to</u>that enables a user to view <u>the</u> backup data stored on the destination

4  storage system that is associated respectively with each of the entries.


1  9. – 11. (Cancelled)


1  12. (Currently Amended) The system as set forth in claim 8-<u>7</u> wherein <u>the display screen</u>

2  <u>of the management client</u>each of the entries of each listing comprises a restore-button

3  <u>configured to</u>that enables a user to view restorable backup data structures with respect to

4  each of the entries and to restore the backup data structures to the source data.


1  13. (Cancelled)


1  14. (Currently Amended) The system as set forth in claim 1-2 wherein each qtree com-

2  prises one or more qtree relationships with respect to other qtrees within the source stor-

3  age system.


1  15. (Currently Amended) The system as set forth in claim 1 wherein the user interface <u>of</u>

2  <u>the management client</u> comprises a command for destroying a qtree relationship between

3  the-source data and a selected volume of the backup data in the destination storage sys-

4  tem.


1  16. (Currently Amended) The system as set forth in claim 15 wherein the management

2  application is <u>further</u> configured to delete a respective qtree associated with the qtree re-

3  lationship on the destination storage system in response to activation of the command for

4  destroying the qtree relationship.

17. (Currently Amended) The system as set forth in claim 1 wherein~~further comprising,~~ ~~in the user interface, a~~ the display screen of the management client is configured to~~that~~ enables selected data of ~~the~~ source data to be listed as entries and to be transmitted as the backup data to the destination storage system at a time separate from a scheduled backup time.

18. (Currently Amended) A computer implemented method for indexing and manipulating backup data stored on a destination storage system from source data stored on a source storage system, comprising:

communicating, by a management client, with the destination storage system and accessing data identifiers related to the backup data organized in a tree structure and representing a plurality of persistent consistency point images (PCPIs) of the data, each with associated information related to a creation time;

scanning the tree structure through at least one volume information block configured to reference each root of each~~the plurality of~~ PCPIs comprising the tree structure to generate an index of directories, files, or qtrees created at different points in time;

organizing the data identifiers to~~into a structure that~~ enables the data to be displayed on a display screen of the management client according to the directory, the file, or the qtree; and

selecting, on a user interface of the management client, a specified directory, file, or qtree to view, and, in response to the selection, querying ~~wherein~~ the management client and in response to the query, returning~~returns~~ a list of the ~~selected~~ specified directory, file, or qtree created at different points in time.

19. (Currently Amended) The method as set forth in claim 18 further comprising storing, in a database coupled to the management client, the data identifiers and rules for handling the data identifiers for retrieval by the user interface and the management application.

1    20. (Currently Amended) The method as set forth in claim ~~19~~ 18 further comprising pro-

2    viding, in the destination storage system, a network data management protocol (NDMP)

3    extension communicating with a storage operating system of the destination storage sys-

4    tem and providing NDMP-based communication between the management application

5    and the storage operating system.

1    21. (Currently Amended) The method as set forth in claim 20 further comprising organiz-

2    ing, in a job <u>management</u> framework <u>of the management client</u>, <u>one or more</u>~~a plurality of~~

3    backup operations and restore operations by the management application and that com-

4    municates with the user interface ~~so as~~ to enable a user to access information with respect

5    to status of the backup operations and restore operations organized by the job<u> manage-</u>

6    <u>ment</u> framework.

1    22. (Currently Amended) The method as set forth in claim <u>18</u>~~21~~ further comprising inter-

2    facing a scheduler <u>of the management client</u> with the source storage system and perform-

3    ing, at scheduled times, backup operations that transmit the backup data from the source

4    storage system to the destination storage system at a predetermined time interval.

1    23. (Previously Presented) The method as set forth in claim 22 further comprising ena-

2    bling a user to set a desired lag time after which failure to complete a scheduled backup

3    operation causes an event to occur.

1    24. (Currently Amended) The method as set forth in claim 18 further comprising select-

2    ing ~~(a)~~ a listing of source data entries indexed by names of the source storage system and

3    ~~(b)~~<u>selecting</u> a listing of source data entries indexed by names of volumes of the destina-

4    tion storage system in which the backup data ~~from the source data~~ resides.

1    25. (Currently Amended) The method as set forth in claim 24 further comprising enabling

2    a user to view, by the display screen of the management client, the backup data stored on

3    the destination storage system that is associated respectively with each of the entries.

1    26. – 28. (Cancelled)

1    29. (Currently Amended) The method as set forth in claim 24 further comprising enabling

2    a user to view, by the display screen of the management client, restorable backup data

3    structures with respect to each of the entries and to restore the backup data structures to

4    the source data.

1    30. (Cancelled)

1    31. (Currently Amended) The method as set forth in claim 18 wherein each one or more

2    of each qtree comprises qtree relationships with respect to other qtrees within the source

3    storage system.

1    32. (Currently Amended) The method as set forth in claim 18 further comprising provid-

2    ing, by in the user interface of the management client, a command for destroying a qtree

3    relationship between source data and a selected volume of the backup data in the destina-

4    tion storage system.

1    33. (Previously Presented) The method as set forth in claim 32 further comprising, in re-

2    sponse to activation of the command for destroying the qtree relationship, deleting a re-

3    spective qtree associated with the qtree relationship on the destination storage system.

1    34. (Currently Amended) The method as set forth in claim 18 further comprising provid-

2    ing, in by the display screen user interface of the management client, a view screen that

3    enables selected data of the source data to be listed as entries and to be transmitted as the

4    backup data to the destination storage system at a time separate from a scheduled backup

5    time.

1    35. (Currently Amended) A method for managing backup of data, comprising:

2    scanning at least one volume information block referencing each root of a plural-

3    ity of persistent consistency point images (PCPIs) comprising a particular tree structure

4    stored on a destination storage system;

5    generating, by a management client, an index of qtrees in response to scanning the

6    volume information block referencing each root of the plurality of PCPIs, wherein each

7    qtree comprisinghas one or more versions created at different creation timespoints in ti-

8    me;

9    selecting, by a query issued at the management client, a particular qtree to view of

10   the index of qtrees; and

11   displaying, on a screen of the management client in response to the query, each

12   version of the particular qtree created at the different points in timecreation times.

1    36. (Cancelled)

1    37. (Previously Presented) The method as set forth in claim 35 further comprising format-

2    ting information into a network data management protocol (NDMP).

1    38. (Currently Amended) The method as set forth in claim 35 further comprising activat-

2    ing, via the user interface, user interface buttons associated with entries of the displayed

3    qtree.

1    39. (Currently Amended) A computer-readable medium containing executable program

2    instructions executed by a processor, comprising:

3    program instructions that scan <u>at least one volume information block referencing</u>

4    <u>each root of</u> a plurality of persistent consistency point images (PCPIs) <u>comprising a par-</u>

5    <u>ticular tree structure</u> stored on a destination storage system;

6    program instructions that generate<u>, by a management client,</u> an index of qtrees in

7    response to scanning <u>the volume information block referencing each root of</u> the plurality

8    of PCPIs, ~~wherein~~ each qtree <u>comprising</u>~~has~~ one or more versions created at different

9    <u>creation times</u>~~points in time~~;

10    program instructions that select<u>, by a query issued at the management client,</u> a

11    particular qtree to view<u> of the index of qtrees</u>; and

12    program instructions that display<u>, on a screen of</u> the management client <u>in re-</u>

13    <u>sponse to the query,</u> each version of the particular qtree created at the different ~~points in~~

14    ~~time~~<u>creation times</u>.

1    40. (Cancelled)

1    41. (Previously Presented) The computer-readable medium as set forth in claim 39 fur-

2    ther comprising program instruction that format information into a network data man-

3    agement protocol (NDMP).

1    42. (Currently Amended) A system, comprising:

2    a source storage system configured to generate a plurality of persistent consis-

3    tency point images (PCPIs) associated with a particular directory tree, and further config-

4    ured to transfer the plurality of PCPIs to a destination storage system;

5    <u>a management client comprising a processor configured to execute a management</u>

6    <u>application</u>~~the destination storage system configured to execute a management client,~~

7    ~~wherein~~ the management <u>application</u>~~client is~~ configured to <u>scan the particular directory</u>

8    <u>tree through at least one volume information block configured to reference each root of</u>

9    <u>each PCPI comprising the particular directory tree to</u> organize the plurality of PCPIs into

10    an index using a database <u>operatively connected to the management client configured</u> to

11  allow the plurality of PCPIs to be displayed on a display screen of the management client

12  as~~in (a)~~a listing of source data entries indexed by the particular directory tree, ~~wherein~~

13  each PCPI of the particular directory tree ~~is~~created at one or more different creation

14  times~~(b)~~, and to allow the plurality of PCPIs to be displayed on the display screen as a

15  listing of source data entries indexed by names of the source storage system, and ~~(c)~~to

16  allow the plurality of PCPIs to be displayed on the display screen as a listing of source

17  data entries indexed by names of volumes of the destination storage system in which

18  backup data from the source storage system resides; and

19  an interface of the management client configured to select a data entry for the par-

20  ticular directory tree, and, in response to the selection, query the management applica-

21  tion~~client further configured~~ and in response to the query~~to~~ return a list of the plurality of

22  PCPIs associated with the particular directory tree.

1  43. – 45. (Cancelled)

1  46. (Currently Amended) The system of claim 42, wherein the database operatively cou-

2  pled to the management client is further configured to store~~stores~~ the plurality of PCPIs

3  and rules for handling the plurality of PCPIs for retrieval by the interface and the man-

4  agement client.

1  47. (Currently Amended) The system of claim 42, wherein the source storage system,

2  upon initialization, is further configured to send~~sends~~ a base PCPI and select data to the

3  destination storage system.

1  48. (Currently Amended) The system of claim 42, further comprising a scheduler of the

2  management client configured to~~that~~ interface~~s~~ with the source storage system and per-

3  form~~s~~ one or more backup operations of transmitting the backup data comprising one or

4  more PCPIs and change data from the source storage system to the destination storage

5  system at a predetermined time interval.

49. (Currently Amended) A <u>computer implemented</u> method, comprising:

transferring a plurality of persistent consistency point images (PCPIs) from a plurality of source ~~servers~~ <u>storage system</u> to at least one destination storage system;

scanning <u>at least one volume information block referencing each root of</u> the plurality of PCPIs <u>comprising a particular directory tree</u> to create an index of data structures ~~on~~ <u>of</u> the at least one destination storage system, ~~wherein~~ each data structure <u>comprising</u> ~~comprises~~ a plurality of qtree versions ~~each~~ created at different <u>creation times</u> ~~points in time~~;

selecting a particular data structure to view;

<u>in response to the selection, querying the destination storage system, and in response to the querying,</u> returning all qtree versions created at the different ~~points in time~~ <u>creation times</u> for the particular data structure; and

selecting a particular qtree from all the returned qtree versions created at <u>the</u> different <u>creation times</u> ~~points in time~~ to restore.

50. (Currently Amended) A system, comprising:

at least one source ~~server~~ <u>storage system</u> configured to transfer a plurality of persistent consistency point images (PCPIs) to at least one destination storage system;

a management <u>client comprising a processor configured to execute a management application, the management application configured to</u> ~~executed by a processor configured to~~ scan <u>a directory tree through at least one volume information block configured to reference each root of each PCPI comprising the directory tree</u> ~~the plurality of PCPIs~~ to create an index of data structures <u>of</u> ~~on~~ the at least one destination storage system, ~~wherein~~ each data structure <u>comprising</u> ~~comprises~~ a plurality of qtree versions each created at different ~~points in time~~ <u>creation times</u>;

the management application further configured to select a particular data structure to view and<u>, in response to the selection, query the management application</u> ~~further configured~~ <u>and in response to the query</u> ~~to~~ return all qtree versions created at the different ~~points in time~~ <u>creation times</u> for the particular data structure; and

15      a user interface <u>of the management client</u> configured to display <u>on a display</u>

16   <u>screen of the management client</u> all the returned qtree versions created at <u>the</u> different

17   ~~points in time~~<u>creation times</u>, and further configured to allow a user to select a particular

18   qtree from all the returned qtree versions to restore.